



Patient Access API Description, Scope, and Use

Enterprise Development

Revision 3, October 10, 2023



Patient Access API Description, Scope, and Use
Enterprise Development, Revision 3, October 10, 2023

LOG OF REVISIONS

Rev No.	Rev. Date	Changes Made	Approval Names/Dates	Remarks
IC	May 26, 2023	Initial Creation	L. Andresen, Technical Publications/May 26, 2023	Flagship document, potential changes regarding compliance.
1	June 2, 2023	Remove the following resources (<i>temporary: keep draft w/these resources intact for future rev.</i>): -QuestionnaireResponse -ServiceRequest -Specimen	L. Andresen, Technical Publications/June 2, 2023	May be adding these deletions in future revs.
2	June 20, 2023	Retemplature to Long Form Editing for format, structure.	L. Andresen, Technical Publications/June 26, 2023	Table to be vetted for accuracy; content edit.
3	Oct. 10, 2023	Updated table I. d., Page 5. Reformatted ToC/doc.	L. Andresen, Technical Publications/Oct. 10, 2023	Table update Page 5, reformatting.
4				
5				
6				
7				
8				
9				
10				



Patient Access API Description, Scope, and Use
Enterprise Development, Revision 3, October 10, 2023

TABLE OF CONTENTS

Section	Page
Log of Revisions	2
Table of Contents	3
I. Introduction	5
a. Objective/Background	5
b. Resources	5
c. API Sources	5
d. HTTP Successful and Exception Responses	5
II. API Descriptions, Scope, and Use	6
a. Allergy Care	6
b. Care Plan	6
c. Care Team	6
d. Condition	6
e. Coverage	7
f. Device	7
g. Diagnostic Report for Laboratory	7
h. Diagnostic Report for Report and Note Exchange	7
i. Document Reference	8
j. Encounter	8
k. Goal	8
l. Immunization	8
m. Location	9
n. Medication	9
o. Medication Dispense	9
p. Medication Request	9
q. Lab Request Observation	10
r. Pediatric BMI for Age Observation	10
s. Pediatric Weight for Height Observation	10
t. Organization	11
u. Patient	11
v. Practitioner	14
w. Practitioner Role	14
x. Procedure	14
y. Provenance	14
z. Questionnaire Response	15
aa. Related Person	15



Patient Access API Description, Scope, and Use
Enterprise Development, Revision 3, October 10, 2023

bb. Service Request	16
cc. Specimen	16
dd. Explanation of Benefits	16



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

I. INTRODUCTION

a. Objective/Background

The goal of this document is to provide comprehensive, quick-reference information regarding Patient Access API descriptions, scope, and overall use applicable to Kern Health Systems (KHS). All API responses are formatted in accordance with Fast Healthcare Interoperability Resources (FHIR) standards. FHIR is a HL7 (Health Level Seven International) specification designed for seamless electronic transfer of healthcare information, simplifying application development.

b. Resources

APIs are supported by the PERFORM+ Connect solution per US Core, Carin BB, and the PDEX Implementation Guide. Every resource is exposed as a URL and can be obtained by accessing the API root endpoint. This version of the PERFORM+ Connect FHIR®© APIs supports the current R4 version of the FHIR®© Standard in the REST/JSON format (CitiusTech PERFORM+ Connect FHIR API document, Version 1.9).

c. API Sources

APIs applicable to Kern Health Care Patient Access are supported by the following sources:

- HL7 FHIR: <http://hl7.org/fhir/us/core/ImplementationGuide/hl7.fhir.us.core>
- PERFORM+ Connect FHIR API Document Product Version – 22.01.01, Version 1.9

Base URL: <https://fastplusapi.khs-net.com:8080/patient/paa/r4/>

d. HTTP Successful and Exception Responses

Specific error messages can arise during the Patient Access API process. The following table indicates the most common error response status codes with corresponding descriptions:

HTTP Response/Exception Codes	Response/Exception Code Definition	Return Type
200	Successful response	Bundle or Resource
400	Invalid parameter	OperationOutcome/Error
401/4xx	Unauthorized request	OperationOutcome/Error
403	Insufficient scope	OperationOutcome/Error
404	Unknown resource	OperationOutcome/Error
410	Deleted resource	OperationOutcome/Error



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

II. API Descriptions, Scope, and Use

a. Allergy Intolerance (*indicated as 'AllergyIntolerance'*)

This term refers to a harmful or undesirable physiological response unique to an individual and associated with exposure to a substance. It establishes a record of clinical assessment regarding an allergy/intolerance, propensity, or potential risk to an individual who may have an adverse reaction when exposed to a singular, or class, of substance. For more information, visit:

<http://hl7.org/fhir/R4/allergyintolerance.html>.

Syntax: GET [Base URL]/AllergyIntolerance?{<parameter>=<value>}

b. Care Plan (*indicated as 'CarePlan'*)

This term describes the intention of one or more practitioners to deliver care to a particular patient, group, or community, possibly limited to care for a specific condition or set of conditions. Care Plans are used in many areas of healthcare with a variety of scopes, ranging from simple (tracking frequency/dates of immunizations) to complex (creating a detailed oncology plan). A care plan may comprehensively cover diet, chemotherapy, radiation, lab work, counseling, recording relationship timing, pre-conditions, and goals. For more information, visit: <http://hl7.org/fhir/R4/careplan.html>.

Syntax: GET [Base URL]/CarePlan?{<parameter>=<value>}

c. Care Team (*indicated as 'CareTeam'*)

The CareTeam includes all people, teams, and organizations who plan to participate in the coordination and delivery of care for a single patient or group, i.e., a married couple in therapy or a support group. It can also be organizationally assigned without a subject in context, such as a 'code blue' or emergency response team. For more information, visit: <http://hl7.org/fhir/R4/careteam.html>.

Syntax: GET [Base URL]/CareTeam?{<parameter>=<value>}

d. Condition (*indicated as 'Condition'*)

This resource is used to record detailed information regarding a condition, problem, diagnosis or event, situation, issue, or clinical concept that has risen to a level of concern which may be categorized as a point-in-time diagnosis in context with a specific encounter which may or may not appear within a practitioner's Problem List. For more information, visit: <http://hl7.org/fhir/R4/condition.html>.

Syntax: GET [Base URL]/Condition?{<parameter>=<value>}



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

e. Coverage (*indicated as 'Coverage'*)

This term describes a financial instrument which may be used to reimburse or pay for health care products and services, including both insurance and self-payment. This resource is intended to provide high-level identifiers and descriptors of an insurance plan such as information appearing on an insurance card which may be used to pay, in part or in whole, for the provision of healthcare products and services. For more information, visit: <http://hl7.org/fhir/R4/coverage.html>.

Syntax: GET [Base URL]/Coverage?{<parameter>=<value>}

f. Device (*indicated as 'Device'*)

A *Device* is a manufactured item used for provision of healthcare which cannot be substantially changed, and may refer to a medical or non-medical device. It is an administrative resource that tracks the location of a device, and it is referenced by other resources for recording an action such as a procedure or observation. It is used for prescribing and dispensing devices for patient use or for ordering supplies and used to record and transmit Unique Device Identifier (UDI) information regarding a device, such as a patient's implant. For more information, visit: <http://hl7.org/fhir/R4/device.html>.

Syntax: GET [Base URL]/Device?{<parameter>=<value>}

g. Diagnostic Report for Laboratory (*indicated as 'DiagnosticReport'*)

This refers to reporting specifically intended for laboratories regarding findings/interpretation of diagnostic tests performed on patients, groups of patients, devices, locations, and/or specimens. It includes applicable clinical contexts such as provider information, atomic results, images, textual/coded interpretations, and formatted representation of diagnostic reports. A diagnostic report includes information provided by a diagnostic service when investigations are complete. For more information, visit: <http://hl7.org/fhir/R4/diagnosticreport.html>.

Syntax: GET [Base URL]/DiagnosticReport?<parameter>=<value>}

h. Diagnostic Report for Report and Note Exchange (*indicated as 'DiagnosticReport'*)

This refers to reporting specifically intended for the exchange of patient reports and notes of a diagnostic nature, typically provided by a diagnostic service when investigations are complete. Information can include atomic results, text reports, images, and codes derived from findings and interpretations of diagnostic tests performed on patients, groups of patients, devices/locations, and/or specimens. Reports include clinical context such as requests and provider information. For more information, visit: <http://hl7.org/fhir/R4/diagnosticreport.html>.

Syntax: GET [Base URL]/DiagnosticReport?<parameter>=<value>}



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

i. Document Reference (indicated as 'DocumentReference')

A *DocumentReference* is used to index a document, clinical note, and other binary objects to make them available to a healthcare system. A *document* is an identifiable sequence of bytes, establishing its own context (e.g., what subject, author, etc. can be displayed to the user), and includes defined update management. It provides metadata in order for the document to be discovered/managed. The scope of a document is any serialized object with a mime-type, including formal patient-centric documents (CDA), clinical notes, scanned paper, and non-patient specific documents such as policy text. For more information, visit: <http://hl7.org/fhir/R4/documentreference.html>.

Syntax: GET [Base URL]/DocumentReference?{<parameter>=<value>}

j. Encounter (indicated as 'Encounter')

An *Encounter* describes an interaction between a patient and their healthcare provider(s) for the purpose of providing healthcare services or assessing the health status of a patient. It is further characterized by the setting in which it takes place (ambulatory, emergency, home health, inpatient and virtual encounters). An *Encounter* encompasses the care lifecycle through pre-admission, the actual encounter (for ambulatory encounters), as well as admission, stay, and discharge (for inpatient encounters). During the encounter, the patient may move from practitioner to practitioner and location to location. For more information, visit: <http://hl7.org/fhir/R4/encounter.html>.

Syntax: GET [Base URL]/Encounter?{<parameter>=<value>}

k. Goal (indicated as 'Goal')

A *Goal* describes intended objectives for a patient, group, or organization (weight loss, restoring activity, obtaining herd immunity via immunization, meeting a process improvement objective, etc.) It is a statement of a desired health state to be achieved by a subject (or family/group) over an undetermined period of time or within a specified timeframe. This desired target health state may be achieved via healthcare intervention or resulting from natural recovery. Goals may address the prevention of illness, cure or mitigation of a condition, prolongation of life, or mitigation of pain and discomfort. For more information, visit: <http://hl7.org/fhir/R4/goal.html>.

Syntax: GET [Base URL]/Goal?{<parameter>=<value>}

l. Immunization (indicated as 'Immunization')

Immunization describes the event of a vaccine being administered to a patient, or a record of an immunization as reported by a patient, clinician, or other party. It is intended to cover the recording of current and historical administration of vaccines to patients across all healthcare disciplines in all care settings and regions. This includes immunization of both humans and animals, but does not include administration of non-vaccine agents, even those that may have or claim to have immunological effects. For more information, visit: <http://hl7.org/fhir/R4/immunization.html>.



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

Syntax: GET [Base URL]/Immunization?{<parameter>=<value>}

m. Location (*indicated as 'Location'*)

A *Location* refers to positional information for a physical place where services are provided and resources and participants may be stored, found, contained, or accommodated. This includes both *incidental* locations (a place used for healthcare without prior designation or authorization) as well as *dedicated, formally appointed* locations. Locations may be private, public, mobile, or fixed, providing minimal items (such as small freezers) to large-scale hospital buildings or parking garages. For more information, visit: <http://hl7.org/fhir/R4/location.html>.

Syntax: GET [Base URL]/Location?{<parameter>=<value>}

n. Medication (*indicated as 'Medication'*)

This resource is primarily used to identify/define the action of prescribing, dispensing, and administering a medication, including notes regarding medication use. In most healthcare settings, items must be identified from a list to be imported into a patient-related resource or other applications. Additional information regarding a specific medication can be provided for human verification; however, details regarding composition/efficacy of a specific medication can also be referenced via medication dictionaries which supply and define specific medication codes. For more information, visit: <http://hl7.org/fhir/R4/medication.html>.

Syntax: GET [Base URL]/Medication /{<reference>}

Syntax: GET [Base URL]/Medication?{<parameter>=<value>}& _revinclude=Provenance: target

o. Medication Dispense (*indicated as 'MedicationDispense'*)

This refers to the process of a medication being dispensed (or having been dispensed) for a specific patient. This includes a description of the medication product (supply) provided, and instructions regarding medication administration. Examples include dispensing/pick-up from an outpatient or community pharmacy, patient-specific medications from inpatient pharmacy to ward, as well as issuing a single dose from ward stock to a patient for consumption. Medication Dispense is the result of a pharmacy system responding to a medication order. For more information, visit:

<http://hl7.org/fhir/R4/medicationdispense.html>.

Syntax: GET [Base URL]/MedicationDispense?{<parameter>=<value>}

p. Medication Request (*indicated as 'MedicationRequest'*)

A *Medication Request* is a request for medication to be supplied, accompanied by instructions for administration of the medication to a patient. The resource is indicated as *MedicationRequest* rather than *MedicationPrescription* or *MedicationOrder* to generalize the use across inpatient and outpatient settings, including care plans, etc., and to harmonize with workflow patterns. This resource covers all



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

types of orders for medications for a patient, including inpatient medication orders as well as community orders (whether filled by the prescriber or by a pharmacy). It also includes orders for over-the-counter medications (such as Aspirin), comprehensive perinatal nutrition and vitamin supplements, and in some cases, medication-related devices. For more information, visit: <http://hl7.org/fhir/R4/medicationrequest.html>.

Syntax: GET [Base URL]/MedicationRequest?{<parameter>=<value>}

q. Laboratory Result Observation (*indicated as 'Observation'*)

Observations are a central element to healthcare, used to support diagnosis, monitor progress, determine baselines and patterns, and even capture demographic characteristics. Laboratory results are grouped and summarized using the DiagnosticReport resource which references Observation resources, which can be found at:

<http://hl7.org/fhir/us/core/StructureDefinition-us-core-observation-lab.html>.

For more information regarding Laboratory Result Observation, visit:

<http://hl7.org/fhir/R4/observation.html>.

Syntax: GET [Base URL]/Observation?{<parameter>=<value>}

r. Pediatric BMI for Age Observation (*indicated as 'Observation'*)

This profile sets minimum expectations for the Observation resource to record, search, and access pediatric body mass index (BMI) percentile, which can be found here:

<http://hl7.org/fhir/us/core/StructureDefinition/pediatric-bmi-for-age>. Observations are a central element in healthcare used to support diagnosis, monitor progress, determine baselines/patterns, and capture demographic characteristics. For more information regarding Pediatric BMI for Age Observation, visit: <http://hl7.org/fhir/R4/observation.html>.

Syntax: GET [Base URL]/Observation?{<parameter>=<value>}

s. Pediatric Weight for Height Observation (*indicated as 'Observation'*)

This profile sets minimum expectations for the Observation resource to record, search, and fetch pediatric weight for height per age and gender observations, which can be found here:

<http://hl7.org/fhir/us/core/StructureDefinition/pediatric-weight-for-height>. Observations are a central element in healthcare used to support diagnosis, monitor progress, determine baselines/patterns, and capture demographic characteristics. For more information regarding Pediatric Weight for Height Observation, visit: <http://hl7.org/fhir/R4/observation.html>.

Syntax: GET [Base URL]/Observation?{<parameter>=<value>}



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

t. Organization (*indicated as 'Organization'*)

An *Organization* within the healthcare community is defined as a formally or informally recognized group of people/organizations formed for the purpose of achieving a specific collective action. An organization includes companies, institutions, corporations, departments, community groups, healthcare practice groups, payer/insurer entities, etc. This resource may be used as a shared registry of contact for supplying information to various organizations, or as a support for other resources that need to reference an organization in the form of documentation, informal messages, or contained resources. For more information, visit: <http://hl7.org/fhir/R4/organization.html>.

Syntax: GET [Base URL]/Organization?{<parameter>=<value>}

u. Patient (*indicated as 'Patient'*)

This resource covers data regarding patients and animals involved in a wide range of health-related activities, including curative activities, psychiatric care, social services, pregnancy care, nursing/assisted living, and dietary services. In addition, it presents demographic and other administrative information regarding an individual or animal receiving care or other health-related services. For more information, visit: <http://hl7.org/fhir/R4/patient.html>.

Syntax: GET [Base URL]/Patient?{<parameter>=<value>}

Sample Response:

```
{
  "resourceType": "Bundle",
  "id": "de9dd5f1-ac9f-4b87-a8c7-c45d4414ad16",
  "meta": {
    "lastUpdated": "2023-05-24T13:16:39.721-07:00"
  },
  "type": "searchset",
  "total": 1,
  "link": [
    {
      "relation": "self",
      "url": "https://fastplusapiuat.khs-net.com:8080/patient/paa/r4/Patient?_id=MEM0331302"
    }
  ],
  "entry": [
    {
      "fullUrl": "https://fastplusapiuat.khs-net.com:8080/patient/paa/r4/Patient/Kern-pat-91234567A",
```



Patient Access API Description, Scope, and Use
Enterprise Development, Revision 3, October 10, 2023

```
"resource": {
  "resourceType": "Patient",
  "id": "Kern-pat-91234567A",
  "meta": {
    "versionId": "3",
    "lastUpdated": "2021-09-14T00:05:07-07:00",
    "profile": [
      "http://hl7.org/fhir/us/core/StructureDefinition/us-core-patient"
    ]
  },
  "extension": [
    {
      "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-race",
      "extension": [
        {
          "url": "text",
          "valueString": "ETHN0001"
        }
      ]
    },
    {
      "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-ethnicity",
      "extension": [
        {
          "url": "text",
          "valueString": "ETHN0001"
        }
      ]
    }
  ],
  "identifier": [
    {
      "system": "http://hl7.org/fhir/StructureDefinition/structuredefinition-fhir-type",
      "value": "0000"
    },
    {
      "system": "http://hl7.org/fhir/StructureDefinition/structuredefinition-fhir-type",
```



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

```
"value": "322357"
},
{
  "system": "http://hl7.org/fhir/StructureDefinition/structureddefinition-fhir-type",
  "value": "91234567A"
},
{
  "system": "http://hl7.org/fhir/StructureDefinition/structureddefinition-fhir-type",
  "value": "322357-0001-001U"
},
{
  "system": "http://hl7.org/fhir/StructureDefinition/structureddefinition-fhir-type",
  "value": "322357-0001-001U"
}
],
"active": false,
"name": [
  {
    "family": "RECIPIENT",
    "given": [
      "JOHN",
      "JOHN"
    ],
    "prefix": [
      "prefix"
    ]
  }
],
"telecom": [
  {
    "system": "phone",
    "value": "1234567890",
    "use": "home"
  }
],
"gender": "male",
"birthDate": "1962-01-01"
```



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

```
    },  
    "search": {  
      "mode": "match"  
    }  
  }  
]  
}
```

v. Practitioner (indicated as 'Practitioner')

A practitioner is a person who is directly or indirectly involved in the provisioning of healthcare, which covers all individuals who are engaged in the healthcare process and healthcare-related services as part of their formal responsibilities. This resource is used for attribution of activities and responsibilities regarding healthcare practitioners. For more information, visit:

<http://hl7.org/fhir/R4/practitioner.html>.

Syntax: GET [Base URL]/Practitioner?{<parameter>}={<value>}

w. Practitioner Role (indicated as 'PractitionerRole')

This term refers to a specific set of roles, locations, specialties, and services that a practitioner may provide for an organization, including a record of location/types of services. For more information, visit: <http://hl7.org/fhir/R4/practitionerrole.html>.

Syntax: GET [Base URL]/PractitionerRole?{<parameter>}=<value>}

x. Procedure (indicated as 'Procedure')

A *Procedure* is an activity that is performed on, with, or for a patient as part of the provision of care, such as a physical intervention (an operation), or a less invasive procedure such as long-term services, counseling, or hypnotherapy. This resource is used to record details of current and historical procedures performed on a patient. For more information, visit:

<http://hl7.org/fhir/R4/procedure.html>.

Syntax: GET [Base URL]/Procedure?{<parameter>}=<value>}

y. Provenance (indicated as 'Provenance')

Provenance is a record describing entities and processes involved in producing and delivering (or influencing) a specific resource, providing a critical foundation for assessing authenticity, enabling trust, and allowing reproducibility. This resource tracks information regarding the activity that created, revised, deleted, or signed a version of a resource, describing the entities and agents involved. This information can be used to form assessments reading quality, reliability, and trustworthiness, or to



Patient Access API Description, Scope, and Use
Enterprise Development, Revision 3, October 10, 2023

advise regarding further investigation of resource origins. For more information, visit:

<http://hl7.org/fhir/R4/provenance.html>.

Syntax: GET [Base URL]/<Resource>?{<parameter>=<value>}&_revinclude=Provenance:target

z. Questionnaire Response (*indicated as 'QuestionnaireResponse'*)

This resource provides a structured set of questions with corresponding answers ordered/grouped into coherent subsets, providing a complete or partial list of answers. Questions may be included directly or by reference to a questionnaire resource that defines questions/constraints regarding allowed answers. For more information, visit: <http://hl7.org/fhir/R4/questionnaireresponse.html>.

Syntax: GET [Base URL]/QuestionnaireResponse?{<parameter>=<value>}

aa. Related Person (*indicated as 'RelatedPerson'*)

This resource refers to information regarding someone involved in caring for a patient but who is not the target of healthcare, nor has a formal responsibility in the care process. This person typically has a personal or non-healthcare-specific professional relationship with the patient. A *RelatedPerson* resource is primarily used for information collection. For more information, visit:

<http://hl7.org/fhir/R4/relatedperson.html>.

Syntax: GET [Base URL]/RelatedPerson?{<parameter>=<value>}

The following table provides search parameters for the *RelatedPerson* resource with descriptions:

Search Parameters	Description
	Indicates...
active	If the related-person record is <i>active</i>
address	A server-defined search that may match address field (line, city, district, state, country, postal code, and/or text)
address-city	City specified in an address
address-postalcode	Postal code specified in an address
address-state	State specified in address
family	Use code specified in address
gender	Gender of related person
given	Portion of given name of related person
identifier	Identifier of related person
name	A server-defined search that may match 'HumanName' field (family, given, prefix, suffix, and/or text)
patient	The patient which the person is related to
relationship	Relationship of related person and patient



Patient Access API Description, Scope, and Use

Enterprise Development, Revision 3, October 10, 2023

bb. Service Request (indicated as 'ServiceRequest')

This indicates a record of request for a service such as diagnostic investigations, treatments, or operations to be performed, serving as a record of request for a procedure, diagnostic, or other service to be planned, proposed, or performed. This differs from the 'ServiceRequest.intent' field value. For more information, visit: <http://hl7.org/fhir/R4/servicerequest.html>.

Syntax: GET [Base URL]/ServiceRequest?{<parameter>=<value>}

cc. Specimen (indicated as 'Specimen')

This resource refers to any material sample taken from a biological entity, living or dead, or taken from a physical object or environment used for analysis. For more information, visit:

<http://hl7.org/fhir/R4/specimen.html>.

Syntax: GET [Base URL]/Specimen?{<parameter>=<value>}

dd. Explanation Of Benefits (indicated as 'ExplanationOfBenefit')

The *ExplanationOfBenefit* (EOB) resource provides details applicable to claim processing adjudication as well as optional account balance information to inform the subscriber of provided benefits. It also combines key information from a claim, claim response, and optional account information to inform a patient of goods/services rendered by a provider and the settlement made under the patient's claim coverage. It may also be used as a resource for data exchange for bulk data analysis since the resource encompasses claim, claim response, and coverage/eligibility details. For more information, visit:

<https://www.hl7.org/fhir/R4/explanationofbenefit.html>.

Syntax: GET [Base URL]/ExplanationOfBenefit?{<parameter>=<value>}